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June 17, 2002

Mr. James Chang (SFD-8-1)  
U.S. Environmental Protection Agency  
Region 9  
75 Hawthorne Street  
San Francisco, CA 94105

**Subject: Contract No. 68-W-98-0220 / WA No. 220-11-09WQ  
George/Norton Air Force Base Work Assignment,  
Draft Groundwater Pesticide Investigation Report,  
George Air Force Base, California, May 2002.**

Dear Mr. Chang,

Enclosed please find TechLaw's review of the Draft Groundwater Pesticide Investigation Report, George AFB, May 2002. This report recommends additional groundwater monitoring wells, groundwater sampling, and soils sampling to identify the source(s) of dieldrin that is being measured in site groundwater. This effort is complicated by the complex site geology and the lack of identified pesticides sources. Future workplans and reports need to use the terminology as well as the geological and hydrogeological information now being developed using site conceptual models. Further investigations require discussions among the Air Force and regulatory agencies to define the data quality objectives.

Thank you for the opportunity to provide U. S. EPA with technical services at George Air Force Base. Should you have any questions, please call the Site Manager, Bill Mabey at (415) 281-8730, extension 24.

Sincerely,

Indira Balkissoon,  
Regional Manager

copy to: Angela Commisso, Region 9 w/o attachment  
P. Brown-Derocher, Central Files

Geo106 DGWPIR



**GEORGE AIR FORCE BASE  
Victorville, California**

**Review of the  
Draft Groundwater Pesticide Investigation Report,  
George Air Force Base, California,  
May 2002.**

**Submitted to:**

**Mr. James Chang  
EPA Work Assignment Manager  
U.S. Environmental Protection Agency  
Region IX (SFD-8-1)  
75 Hawthorne Street  
San Francisco, CA 94105**

**Prepared by:**

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<b>U.S. EPA Work Assignment No.</b>	<b>220-11-09WQ</b>
<b>U.S. EPA Site ID No.</b>	<b>CA2570024453</b>
<b>Contract No.</b>	<b>68-W-98-220</b>
<b>U.S. EPA WAM</b>	<b>James Chang</b>
<b>Telephone No.</b>	<b>(415) 972-3193</b>
<b>TechLaw Site Manager</b>	<b>Bill Mabey</b>
<b>Telephone No.</b>	<b>(415) 281-8730 ext. 24</b>

**June 17, 2002**

**Review of the Draft Groundwater Pesticide Investigation Report,  
George Air Force Base, California,  
May 2002.**

**GENERAL COMMENT**

1. The text of this report does not use the terminology developed for the Geologic Site Conceptual Model (CSM). A Hydrogeologic Site Conceptual Model will also be developed for the George Air Force Base site and the information from the pesticide investigation area should be integrated with the results of these models. Future workplans and reports should use both the terminology and the information developed in these conceptual models for characterizing the sources and groundwater pathway for pesticides at George Air Force Base.

**SPECIFIC COMMENTS**

1. **Section 2., Drilling, Page 2.1 and Section 3. Hydrogeologic Findings, Page 3-1:** These sections indicate that the hydrogeology in the pesticide investigation area is not well understood. Please recognize that a Hydrogeologic Site Conceptual Model for this area of George Air Force Base must be developed, and this effort would logically require the Geologic Site Conceptual Model for the larger base area be extended into the area where pesticide contaminations is present. These models can then be discussed with the regulatory agencies to set data quality objectives and optimize future investigation efforts.
2. **Section 2.2.3.1, Page 2-5, first full paragraph:** A reference is made to a June 2001 TechLaw document, Split Sampling Report, March 2001 Soil Pesticide Investigation. This was a draft document and the final report is dated December 2001. Please also note that all sample locations collected for analysis by the U.S. EPA were designated by the U.S. EPA manager. The data for these samples should be identified as EPA sample data and not those of TechLaw or the subcontractor.
3. **Section 3.1, Hydrogeologic Findings, Page 3-2:** It is premature to discuss the lacustrine aquitard because it is not clear from the boring logs in the appendices that the Middle Lacustrine Unit is present as discussed in the text and indicated on Figure 3-1. The indication that the groundwater is partially confined in NZ-66 and NZ-91 supports the possible presence of a confining layer but not necessarily the presence of an aquitard. The site geology appears to be more complex than on the western portion of the base, and until the aquitard can be more definitively identified in this pesticide investigation area references to an aquitard should be removed.
4. **Section 3.2, Groundwater Analytical Results, Page 3-3:** The introductory phrase in the last paragraph apparently contains a typographical glitch. Please confirm that the opening should read "In the Pesticide AOC ...", and that other text has not been omitted.

5. **Section 3.3, Soil Analytical Results, Page 3-4:** The last paragraph suggests that a discrepancy may exist between the Air Force's non-detect observation and the U.S. EPA's detection of dieldrin in the same split sample due to the EPA sample being mislabeled. Without other information, this rationalization is gratuitous speculation, and could also just be due to sample heterogeneity.
6. **Tables 3-1 and 3.2:** The tables do not state whether the limiting concentration values are based on reporting limits or detection limits. However, the definition of the F qualifier suggests the limiting values are based on reporting limits. Please also indicate the detection limits so as to indicate the level, although qualitative, at which dieldrin could be detected. Please also explain the J qualified value for Sample NZ-66 in Table 3-2 as the value is apparently cited as valid in the text.
7. **Section 4.1.2, Recommendations (for groundwater), Page 4-2:** The recommendations for new monitoring wells and continued groundwater sampling is reasonable, and the rationale for location of the wells and the sampling program should be discussed with the regulatory agencies. No data other than dieldrin analyses are presented in this report. For future sampling, please also consider the use water quality parameters or even the use natural abundance isotopes to additionally characterize possible different water sources in the area that would aid in investigating the source(s) of dieldrin.
8. **Section 4.2.2, Recommendations (for soil), Page 4-4:** An extended effort to identify sources of dieldrin in soil that have potential routes to groundwater is reasonable, but discussions with the regulatory agencies are also necessary to clearly define the data quality objectives.